

WHAT IS CLAIMED IS:

1. A chill roll for a web printing press comprising:  
a cylindrical drum; and  
a porous layer disposed at a circumference of the drum and configured to provide a pathway for air from a first location between the chill roll and a web passing over the chill roll and a second location having a lower air pressure.
2. The chill roll as recited in claim 1 wherein the porous layer is attached to a circumferential surface of the drum.
3. The chill roll as recited in claim 1 wherein the porous layer is integral with a circumferential surface of the drum.
4. The chill roll as recited in claim 1 wherein the porous layer forms a circumferential surface of the drum.
5. The chill roll as recited in claim 1 wherein the pathway is configured to enable the air to move in a radial direction.
6. The chill roll as recited in claim 5 wherein the pathway is further configured to enable the air to move in at least one of a lateral and a circumferential direction.
7. The chill roll as recited in claim 1 wherein the porous layer includes a matrix of material.
8. The chill roll as recited in claim 1 wherein the porous layer includes a fibrous material.
9. The chill roll as recited in claim 1 wherein the porous layer includes a foamed material.

10. The chill roll as recited in claim 1 wherein the porous layer defines at least one of a hole, a slot and a tube so as to provide the pathway.

11. The chill roll as recited in claim 1 wherein the porous layer includes a material having a high thermal conductivity.

12. The chill roll as recited in claim 11 wherein the porous layer includes at least one of steel, aluminum and copper.

13. The chill roll as recited in claim 1 wherein the porous layer has a thickness of from about 1 mm to about 2.5 mm.

14. The chill roll as recited in claim 1 wherein the second location is at a lateral edge of the drum.

15. The chill roll as recited in claim 1 wherein the air is entrained at the first location.

16. The chill roll as recited in claim 1 wherein the pathway is configured to enable the air to move from the first location so as to improve a heat transfer between the web and the chill roll.

17. The chill roll as recited in claim 1 wherein the drum defines a coolant inlet and a coolant outlet configured for circulating a coolant through an interior space defined by the drum.

18. A web printing press comprising a cylindrical chill roll including a porous layer disposed at a circumference of the chill roll and configured to provide a pathway for air from a first location between the chill roll and a web passing over the chill roll and a second location having a lower air pressure.

19. The web printing press as recited in claim 18 wherein the pathway is

configured to enable the air to move from the first location so as to improve a heat transfer between the web and the chill roll.

20. The web printing press as recited in claim 18 wherein the pathway is configured to enable the air to move in a radial direction and in at least one of a lateral and a circumferential direction.